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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,882	04/30/2001	Guillermo A. Alvarez	10010559-1	1174

7590

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## HEWLETT-PACKARD COMPANY

Intellectual Property Administration

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EXAMINER

YIGDALL, MICHAEL J

ART UNIT

PAPER NUMBER

2122

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/843,882

Applicant(s)

ALVAREZ ET AL.

Examiner

Michael J. Yigdall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-20 are pending and have been examined. The priority date considered for the application is April 30, 2001.

### *Specification*

2. The abstract of the disclosure is objected to because the abstract must not exceed 150 words. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 6,636,951 to Tachikawa.

With respect to claim 1, Tachikawa discloses a method for migrating data (see the title and abstract), said method comprising:

(a) moving a set of data in a data storage system of a computer system (see column 7, lines 40-48, which shows relocating or moving data in a data storage system);

(b) monitoring a performance of at least one executing application, while said moving is in progress (see column 13, lines 6-15, which shows monitoring the load or performance

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conditions of the system while moving the data, and column 10, lines 51-63, which shows that the monitored load condition may be associated with an executing application, such as one operative to record and reproduce image data); and

(c) modifying a rate of said moving in response to said monitoring (see column 12, lines 7-13 and 34-41, which shows controlling the moving based on the monitored load condition).

With respect to claim 2, Tachikawa further discloses setting a performance goal for said at least one executing application, wherein said rate of said moving is increased in response to said monitoring of said performance exceeding said performance goal (see column 9, lines 12-21, which shows setting a predetermined load requirement or goal, and column 12, lines 52-61, which shows performing additional moving if the load is minimal, i.e. increasing the rate of moving if performance exceeds the goal).

With respect to claim 3, Tachikawa further discloses setting a performance goal for said at least one application, wherein said rate of said moving is decreased in response to said monitoring of said performance not achieving said performance goal (see column 9, lines 12-21, which shows setting a predetermined load requirement or goal, and column 12, line 62 to column 13, line 5, which shows performing less moving if the load is such that less time is available, i.e. decreasing the rate of moving if performance does not achieve the goal).

With respect to claim 4, Tachikawa further discloses:

(a) inputting an initial placement of said set of data (see column 7, lines 22-33, which shows data location or placement information, and column 11, lines 45-53 and FIG. 5A, which show an initial placement of the data);

(b) inputting a target placement of said set of data (see column 7, lines 22-33, which shows data location or placement information, and FIGS. 5B and 5C, which show target placements of the data);

(c) developing a migration plan, said migration plan configured to plan said moving of said set of data from said initial placement to said target placement (see column 9, lines 22-31, which shows selecting a relocation program, i.e. a migration plan, in accordance with the placement information); and

(d) executing said migration plan to implement said moving of said set of data (see column 9, lines 32-39, which shows executing the relocation program, i.e. the migration plan, to move the data accordingly).

With respect to claim 5, Tachikawa further discloses:

(a) setting a performance goal for said at least one executing application (see column 9, lines 12-21, which shows setting a predetermined load requirement, i.e. a performance goal); and

(b) wherein said monitoring of said performance is conducted at a periodic sampling interval (see column 10, line 64 to column 11, line 10, which shows monitoring the load or performance conditions at a periodic interval).

With respect to claim 6, Tachikawa further discloses modifying said rate after said periodic sampling interval in response to said performance of said at least one executing application (see column 12, lines 7-13 and 34-41, which shows controlling the moving based on the monitored load condition).

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With respect to claim 7, Tachikawa further discloses increasing said rate in response to said performance of said at least one executing application exceeding said performance goal (see column 12, lines 52-61, which shows performing additional moving if the load is minimal, i.e. increasing the rate of moving if performance exceeds the goal).

With respect to claim 8, Tachikawa further discloses decreasing said rate in response to said performance of said at least one executing application not achieving said performance goal (see column 12, line 62 to column 13, line 5, which shows performing less moving if the load is such that less time is available, i.e. decreasing the rate of moving if performance does not achieve the goal).

With respect to claim 9, Tachikawa further discloses:

(a) setting a violation goal, wherein said violation goal is a maximum percentage of performance violations of all accesses (see column 9, lines 40-50, which shows setting a predetermined suspension requirement, i.e. a violation goal, and column 11, lines 11-15, which shows that such load values may be expressed as percentages); and

(b) restricting, based on the results of said monitoring, said performance violations not to exceed said violation goal (see column 10, lines 5-22, which shows suspending or restricting the moving in response to exceeding the violation goal).

With respect to claim 10, Tachikawa further discloses the limitation wherein said set of data is moved in increments of portions contained within a logical volume (see column 7, lines 49-58 and column 8, lines 28-35, which show that the data is stored and moved in blocks contained within a logical volume).

With respect to claim 11, Tachikawa discloses a system for migrating data on a computer system (see the title and abstract), said system comprising:

(a) a monitor configured to monitor a performance of at least one application executing on said computer system (see column 13, lines 6-15, which shows a monitor for monitoring the load or performance conditions of the system while moving the data, and column 10, lines 51-63, which shows that the monitored load condition may be associated with an executing application, such as one operative to record and reproduce image data);

(b) a controller configured to compare said performance with a performance goal of said at least one application (see column 9, lines 12-21, which shows a controller for comparing the current load conditions with a predetermined load requirement, i.e. a performance goal); and

(c) an actuator configured to adjust a rate of movement of a set of data from one location in said computer system to another location in said computer system, wherein said controller is further configured to adjust said rate of movement in response to said comparison of said performance and said performance goal (see column 7, lines 40-48, which shows an actuator for relocating or moving data in compliance with the controller, and column 12, lines 7-13 and 34-41, which shows controlling the movement based on the load or performance comparison).

With respect to claim 12, Tachikawa further discloses a logical volume mover configured to move data in increments of portions contained within a logical volume, wherein said actuator is further configured to issue commands to a manager of said logical volume to adjust said rate of movement of said set of data (see column 7, lines 40-48, which shows a logical volume mover for relocating or moving data in compliance with a manager, and column 12, lines 7-13 and 34-



41, which shows controlling the movement based on the load or performance comparison; see also column 7, lines 49-58 and column 8, lines 28-35, which show that the data is stored and moved in blocks contained within a logical volume).

With respect to claim 13, Tachikawa further discloses a planner configured to generate a migration plan in response to an input of an initial placement map of said set of data and a target placement map of said set of data, wherein said migration plan is configured to provide a partially ordered set of moves for said set of data and to be executed by said actuator (see column 9, lines 22-31, which shows a planner for selecting a relocation program, i.e. a migration plan, based on data location information, i.e. placement maps, and column 9, lines 32-39, which shows executing the program or plan to move the data accordingly; see also column 7, lines 22-33, which shows the data location information, FIG. 5A, which shows an initial placement map of the data, and FIGS. 5B and 5C, which show target placement maps; see also column 10, lines 23-33, which show that the relocation comprises a sequential set of moves).

With respect to claim 14, Tachikawa further discloses the limitation wherein said actuator is further configured to issue a command to increase said rate of movement of said set of data in response to said controller determining said performance exceeds said performance goal (see column 12, lines 52-61, which shows performing additional moving if the load is minimal, i.e. increasing the rate of movement if performance exceeds the goal).

With respect to claim 15, Tachikawa further discloses the limitation wherein said actuator is further configured to issue a command to reduce said rate of movement of said set of data in response to said controller determining performance does not achieve said performance goal (see

column 12, line 62 to column 13, line 5, which shows performing less moving if the load is such that less time is available, i.e. decreasing the rate of movement if performance does not achieve the goal).

With respect to claim 16, Tachikawa discloses a computer readable storage medium on which is embedded one or more computer programs, said one or more computer programs implementing a method for migrating data on a computer system (see the title and abstract, and column 8, lines 36-45). The limitations of claim 16 are analogous to the limitations recited in claim 1 (see the explanation for claim 1 provided above).

With respect to claim 17, the limitations of this claim are analogous to the limitations recited in claim 4 (see the explanation for claim 4 provided above).

With respect to claim 18, the limitations of this claim are analogous to the limitations recited in claim 5 (see the explanation for claim 5 provided above).

With respect to claim 19, the limitations of this claim are analogous to the limitations recited in claim 9 (see the explanation for claim 9 provided above).

With respect to claim 20, the limitations of this claim are analogous to the limitations recited in claim 6 (see the explanation for claim 6 provided above).

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 6,230,239 to Sakaki et al. discloses a method of data migration,

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wherein the data migration speed can be adjusted based on the utilization of resources. U.S. Pat. No. 6,105,117 to Ripley discloses a method for relocating data blocks. U.S. Pat. No. 6,108,748 to Ofek et al. discloses a method for migrating data transparently.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Yigdall whose telephone number is (703) 305-0352. The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MY

Michael J. Yigdall  
Examiner  
Art Unit 2122

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**WEI Y. ZHEN**  
**PRIMARY PATENT EXAMINER**